PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Form PCT/IPEA/416	
PC-21016761		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/SE2004/001484	15.10.2004	17.10.2003
International Patent Classification (IPC) or national classification and IPC		
F16L 59/02, F16L 59/14		
Applicant		
Saint-Gobain Isover AB et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:

   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 2 sheets, as follows:

      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
16.05.2005	04.10.2005
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Christer Wendenius / MRo Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (April 2005)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/SE2004/001484

Box No. I Basis of the report

1. With regard to the language, this report is based on:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

pages 1-26 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished
pages* _____ as amended (together with any statement) under Article 19
pages* 27-28 received by this Authority on 16.05.2005
pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-4 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/SE2004/001484

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-14	YES
	Claims		NO
Inventive step (IS)	Claims	1-14	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-14	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The invention concerns an insulation system of the kind stated in the preamble of claim 1.

In order to provide an insulation system which is easy and inexpensive to manufacture, which is possible to produce in existing production equipment with minor modifications and which is easy to mount, the system is being arranged in such a manner that the insulation system, starting from the outside, comprises the vapour barrier, a layer of hygroscopic material arranged between the vapour barrier and the thermally insulating layer, said hygroscopic material being at least partially connected with the vapour barrier. The combination of the vapour barrier and the hygroscopic material is further connected with the thermally insulating layer in such a manner that the hygroscopic material partially makes contact with the thermally insulating layer as stated in the characterising part of the claim.

Cited documents:

D1: US 5441083 A
D2: WO 0153740 A1
D3: WO 9405947 A1

From each of D1-D3 is known an insulation system for installation parts which have a an outer surface temperature which periodically is below the dew point of the ambient air comprising a thermally insulating layer, a vapour barrier and a hygroscopic material. The layers are not arranged as stated in claim 1.

As the insulating system in claim 1 is new, is regarded to contain an inventive step, and also is industrially applicable, the patentability criteria are deemed to be met.

CLAIMS

1. An insulation system (1) for pipes, containers, ventilation ducts and like installation parts which have an outer surface temperature which periodically is below the dew point of the ambient air, said insulation system comprising a thermally insulating layer (5) and a layer of a vapour barrier (2) arranged on one side of the thermal insulating layer, said layers being arranged in such a manner that the insulation system (1), starting from the outside, comprises said vapour barrier (2), c h a r a c t e r i s e d by

a layer of hygroscopic material (3) arranged between the layer of the vapour barrier (2) and the thermally insulating layer (5), said hygroscopic material (3) being at least partially connected with the vapour barrier (2), and

the combination of the vapour barrier (2) and the hygroscopic material (3) being connected with the thermally insulating layer (5) in such a manner that the hygroscopic material (3) partially makes contact with the thermally insulating layer (5).

2. An insulation system as claimed in claim 1, in which the hygroscopic material (3) is connected with the thermally insulating layer (5) by means of a thermoplastic binder (4) which is arranged so that, after heating to a temperature above its melting point, it exposes the hygroscopic material (3) to the thermally insulating layer (5).

3. An insulation system as claimed in claim 1, in which the hygroscopic material (3) is thermoplastic.

4. An insulation system as claimed in claim 1, in which the vapour barrier (2) and the hygroscopic material (3) constitute a laminate (7).

5. An insulation system as claimed in claim 2, in which the vapour barrier (2), the hygroscopic material

(3) and the thermoplastic binder (4) constitute a laminate (7).

6. An insulation system as claimed in claim 5, in which the thermoplastic binder (4) is arranged in a first layer next to the vapour barrier (2) and in a second layer next to the thermally insulating layer (5).

7. An insulation system as claimed in claim 4 or 5, in which the laminate (7) comprises perforations (8) which are adapted to make the hygroscopic material (3) communicate with the ambient air.

8. An insulation system as claimed in claim 1, in which the hygroscopic material (5) is a non-continuous layer.

9. An insulation system as claimed in claim 2, in which the thermoplastic binder (4) is arranged as a non-continuous layer.

10. An insulation system as claimed in claim 1, in which the thermally insulating layer (5) comprises an additional hygroscopic material (14; 14').

11. An insulation system as claimed in claim 10, in which the thermally insulating layer (5) and the additional hygroscopic material (14; 14') constitute a flexible pipe shell, a pleated mat or a laminated mat.

12. An insulation system as claimed in claim 1, in which the hygroscopic material (3) forms a reinforcement of the vapour barrier (2).

13. An insulation system as claimed in claim 4 or 5, in which the laminate (4) has such a width as to form flaps (11; 11a; 11b) which can be made to enclose pipes, containers, ventilation ducts and like installation parts.

14. An insulation system as claimed in any of the claims 1, 4 or 5, in which the vapour barrier (2) has moisture adaptive properties.